BREEDING HORSES FOR USE.

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Hugh Cecil Earl of Lonsdale.

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BREEDING HORSES FOR USE.

By F. RAM.

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ὄι τοι ελαφρότατοι θειειν κὰι κάρτος ἄριστοι.

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To men, who are able to look at a question from a standpoint to which they have not been accustomed, the following remarks are, with much respect, addressed by

THE AUTHOR.

June, 1883.

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Breeding Horses for Use.

TO those persons, who take sufficient interest in our horse stock to acquaint themselves with the literature connected therewith, lamentation over a supposed degeneracy of the various breeds is tolerably familiar. Though the complaint is more commonly met with in connection with the lighter sorts, the heavier varieties are also often regarded as sharing in the qualitative decline. Most writers on the subject are ready to suggest measures for recovering the lost ground: but they all seem to me to overlook the real seat of the disease; and consequently the possible remedy. I do not propose to re-discuss in these pages the question, whether the average quality of our friends in the stable is lower than that of the animals, whose places they have taken: but desire rather to point out, with a view to future improvement, the irrationality of our present methods of determining which particular horses are the best to be employed in propagating their kind—that is to say, for raising stock for useful purposes: for my remarks have only a minor, or incidental, reference to those sorts, in connection with which a showy appearance, or prime opportunities for gambling, are the main considerations. Those breeders, who follow in the footsteps of the cheap-jack, whose razors were made, not for use, but for sale, already, perhaps, pursue the right course for the attainment of their aim.

—o—

In the eye of the political economist, the subject to be considered is a very important one: for, although steam has so greatly supplanted animal labour, more work than ever, in

spite of the predictions of our grandfathers, is still effected by horse power; and the difference between the services to be got out of weak, sickly, and short-lived drudges, and those to be obtained from animals of the highest excellency attainable remains, when the whole business of the kingdom is taken into consideration, worthy of much attention.

The estimates to be met with of the number of acres necessary to maintain a horse, compared with the number required to feed a human being, vary greatly: but, I think we may safely assume, that a bimanous family, even if meat consumers, could be fed from the land required to satisfy an average oatgrinder—a fact which will again become of much importance to us as a nation, on the arrival of that not distant time, when, owing to the rapid output of humanity, and the hastening invalidation of soils, which this generation is now forcing to give up their accumulated store of natural strength, which is not replaced, supplies of food from other lands will no longer be looked upon by us as practically unlimited. We ought, therefore, to endeavour to get from the farm produce, which is placed in the stable manger, the maximum amount of power obtainable from it.

That there should be a great difference between horses, as regards the amount of work to be got out of them, in return for the food supplied, is scarcely to be wondered at, when we consider to what uses the aliment obtained by digestion is put. The bulk of it is expended in combustion—for the production of heat, and of force. The warmth of the body must be kept up, whether the animal does little or much; and the surplus energy only is available for work: and even of this a large part is engrossed in driving the machinery connected with the vital functions. And thus, with a comparatively small difference in the food-assimilating powers of two horses, there may be a comparatively large disparity in the respective amounts of energy available for the labor, which their owner seeks to extort from them for his own profit. There is much waste, besides, if an animal is unnecessarily heavy for the strength required for his work. For, be it remembered by those who admire mere bigness and obesity, no horse (nor, indeed, man) can move a step forward without

lifting his entire weight more or less at each stride* : and not one ounce can be raised an inch against the force of gravity without an expenditure of energy. Indeed, but a childish argument appears to be used, when an appeal is made, as was done in the Parliamentary debate on horses (*Hansard*, 223, 1716, *27th April*, 1875), to the fact that our racehorses have become an inch taller every 26 years for a century and a half, and are "still growing," in proof of the assertion that the quality of our horse stock has not declined. When the appeal is to size, some positive gain arising from bigness needs pointing out : some advantage, which will more than counterbalance the drawbacks connected with weightiness. The animal which is a *multum in parvo* is the best friend of the man who keeps horses for use.

In connection with the question of economy of victual, it should not be forgotten that a large part of the provision consumed by horse stock is eaten before the poor slaves get to work—not to mention that given to the unworked brood mares ; and that the bestowal of this food upon the sound and tough, who will in after life give many years of labor, is used less wastefully, when thus expended, than when it is given to weaklings, that early in life will succumb to hardship, toil, or disease.

And therefore, perhaps, if the saying be true, that "the man, who causes two blades of grass to grow, where only one grew before, deserves the gratitude of his fellowmen," and gains the admiration of the political economist, a little buttonholding, whilst the attention of the public ear is claimed, may be excused, when an attempt, however feeble, is made to indicate methods of procedure, from which it may result that, from the same number of blades of grass, or grains of corn, as now yield only one foot-ton of work, a much larger measure of energy is forthcoming.

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* This fact is more worthy of notice in the case of riding-horses, for not only do they raise their own bodies at each step against the mighty pull of this big earth, but they fling up their riders also, and the degree in which any horse does this will affect the extent to which his energy is exhausted and fatigue brought on in any given distance.

When men from other countries are seen to come and buy horses in English markets for breeding purposes, some persons are apt to believe that our horse-breeding systems cannot be much amiss. But, after all, what do we get but the foreigners' opinion in the matter: or rather, I should say, the opinion of some few individuals, who, as likely as not, are altogether wrong in their judgments: falling perhaps into the error of concluding that there must be something behind our insular vauntings on the subject; or, foolishly drawing general conclusions as to all sorts of horses from the renown of our thorough-bred racers, whose fitness for the ignoble purpose for which alone they are now bred—namely, flying, lightly weighted, as fast as scandal, and but for a few moments, for the benefit of gamesters—is not to be denied, being put to the only practical test. Frenchmen may come to buy English horses; but it is worthy of note, that in the Report (1880) of the Assistant Commissioners, who were sent to America by the Royal Commission on Agriculture, it is stated that, although "the introduction of the Clydesdale and Shire horses from Great Britain has tended of late to produce [in the Assistant Commissioners' opinion] a stronger and more valuable class of cart horse" "the horses from France and Normandy appear to find more favor with the Americans"—poor stupids.

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As regard light sorts it is very clear that many breeds, which may be spoken of in the rough as *Eastern horses*, greatly excel our thoroughbreds in stoutness, hardihood, abstemiousness, longevity, and in fact in every truly valuable quality; or travellers must have lied with less scrupulosity on this subject than on any other since travellers began to lie. A race between some of our crack bloods, and some meagre-looking little desert-bred scarecrows might doubtless be so arranged as regards time, distance, and other particulars, as to bring it about that, at the end of a fair contest the latter had a chance of looking down upon the corpses of their degenerate cousins. Not that such a result, one thousand times repeated, would rid us of our narrowminded and baseless conceit, that all sorts of English horses are in every respect the best in the world.

The argument of this pamphlet is that the greatest obstacle to the production of horses of the maximum degree of usefulness attainable, is the prevailing misapprehension as to the degree in which the good and bad qualities of these animals may be discerned by the eye alone. Evidence of the existence of this baseless and mischievous delusion is conspicuous, strange to say, in books, which like Mr. Curr's *Pure Saddle Horses* abound in general good sense, as well as in inferior works. Thus, this author referring to the horses of Australia, remarks on "their great capacity of work, *compared with their figures* (*page* 167). Then again he tells us that "one hundred miles in an emergency are frequently being done in Australia by very unserviceable looking Rosinantes in fifteen hours, without preparation, and off grass. Eighty miles two days consecutively, and seventy miles three or four days following, are constantly being done in the routine of business." And yet of such excellent horses he asserts that "there is nothing that particularly strikes the English eye, except it be their unvarying inferiority of figure, and utter want of quality." (*page* 165.)

The Kirchiz horses, we learn from Colonel Burnaby (*Ride to Khiva, Chapter XVII, page* 153) "can traverse enormous distances without water, forage, or halting." Yet we are told that they "are not generally well-shaped."

Remarks of this tenor are to be met with in abundance in most works in which horses are commented on. To me they always suggest the question whether the figures of the horses are at fault, or the judgment of their detractor. But I suppose that no such doubts ever find their way into the minds of the writers.

In an article by another authority, the ordinary country horses of Hungary are said to be of *great endurance*; and yet are "what we should call in this country, weedy ponies." (*Royal Agricultural Society's Journal*, 1880, *page* 444.) That is what they are in the eye of the expert. But surely horses of great endurance are not appropriately called *weedy*—that is to say in the sense in which the word is ordinarily used in connection with horses—worthless. The expression might not indeed be so far out, if the word bore the unaccustomed

meaning of, as tough and tenacious of life as the vegetable plagues of the farm.*

I write these pages in the hope of exploding the common fallacy of trusting largely to the eye-satisfying test of quality. It is not indeed the method much relied upon in the breeding of animals raised for sporting purposes. A breeder for the turf, who, disregarding the performances of sires and dams, and those of their progenitors and relations, relied upon the judgment of the eye only in selecting the personnel of his stud, would not be able, except by mere chance, to boast the production of winners. But the intrinsic worth of potential sires and dams of useful sorts is almost always decided at shows after a bare ocular scrutiny of the competitors, or but little more. If breeders of light horses for general purposes do look to ancestral performances at all, when choosing sires, the reference is commonly to success in races; that is to say, they look for eminence in a function, for which the hoped-for produce is not intended. The test of deeds performed being altogether discarded, when heavy horses are claiming attention from breeders, a very natural result is that indicated in a letter, which was sent to the newspapers in anticipation of the great cart-horse show, which was held at Islington last year, in which it is stated that "hitherto farmers have had great difficulty in obtaining trustworthy sires for breeding purposes." Many outsiders may, perhaps, be inclined to ask—How is this? Have not shows, one of the prime objects of which was the production of "trustworthy sires," been held time out of mind? Is there not one or more held in each county every year? And what reason is there for expecting that greater success in obtaining the object in view will result from other exhibitions to be conducted on the old lines? What is wrong? The thing to be avoided is the time-honoured mistake of attempting to estimate the worth of the animals by a mere examination of them.

* Unhappily, all the efforts of cultivators to rid their soil of these pests, has, by natural selection, a general tendency to make many species more and more difficult to destroy, those most tenacious of life surviving in greater number to propagate their evil capabilities.

It is commonly said that an Englishman "knows a good horse when he sees it," as though he were guided by a natural instinct in the matter. Persons, who are not absolutely ignorant of the science of Psychology, will be apt to doubt whether a Briton is gifted with any such intuitive knowledge. I suppose that it is just possible that some Asiatic races, continually using one style of horse for one purpose in a homogeneous environment, and in the midst of very perilous conditions of existence, may have been dependent on the good quality of their steeds for a sufficient number of generations for Natural Selection to have endowed them (on account of the increase of security given to the best mounted warriors), with some intuitive perceptions of equine characteristics —that is to say, of one caballine type. Those individuals, whose taste in horseflesh most nearly coincided with actual excellence, would survive in greater numbers to propagate their mental attributes, than those whose fancy led them astray in their choice, or who had the right faculty in less force. But in the case of a comparatively new blend of peoples, like the British, springing from a variety of foreign environments, it is impossible to suppose (although they may inherit a general love of horsekind) they can have an innate knowledge of any value in connection with all the sorts of horses, which are used for many different purposes in an environment largely differing from those of their ancestors. And, therefore, any one of us, desiring to discover the qualities of horses, being void of all innate knowledge of the matter, is dependent on some sort of evidence, or experience, in connection therewith.

When one says that correct ideas on any subject whatever are dependent on human observation, and inferences drawn by human minds from facts observed, in good sooth enough has been said to show that the nature of the enquiry should be reduced to the last degree of simplicity. Considering the absurd conclusions arrived at by people on questions infinitely less occult than horseflesh, one is apt to be suspicious of the value of the judgments passed upon specimens of such highly complex living machinery, some of the most important parts of which—heart, lungs, intestines, arteries, veins, nerves, bones, etc., etc.—are not even visible !

Judges of most other domestic animals have an easier task before them ; as the exhibits are either mere fancy animals, such as show poultry, pigeons, cats, dogs, etc., in which case the only point to be decided is whether the creatures satisfy the prevalent taste—often depraved—to agree with which a mental twist, corresponding to that which originates the particular craze, is the only requisite. Or, the questions to be decided are far simpler than in the case of horses. For a judge of sheep may pretty readily see whether the wool on the creature's back is a marketable article. A judge of cows may prove them at the pail, and may try the quality of the milk by exact chemical tests. A judge of bullocks may see whether the meat is laid on the parts, for which the butcher will pay the highest price. And the judges of all fat-making animals may, if their ages be known, ascertain by the weighing machine how quickly they have made themselves. But the judges of horses have before them a problem which cannot be solved by the eye in the ready manner commonly supposed.

Were the *sazans*, before whom the equine competitors are "paraded," cross-examined in detail as to the foundations on which their opinions on horseflesh rest, how often should we be reminded of the old saying relative to the connection between the building of Tenderden steeple, and the existence of the Goodwin sands : or, of the wisdom of that acute young divine, who discerned the goodness of Providence in making the navigable rivers run through the principal towns ?

How much of their "experience" would be found to be about on a level, as regards validity, with the opinion of those many "practical" farmers, who, their very livelihood being vastly affected by the changes of the weather, after years of watching it, hold to the notion that, though these changes are chiefly brought about by the changes of the moon (!) ; yet that there is also a close connection between meteorology and the days of the week !

The dicta which even the most intelligent writers on horses present us with are seldom backed up by satisfactory proof of their correctness. Too often the mere co-existence of structural, or other peculiarity A., and characteristic B.,

appears to be considered evidence enough of a causal relation between them ; and to nonplus the propounders of maxims so founded, to ask for the steps at which they arrive at their conclusions would often be sufficient. Suppose, for instance, that Major Shakespear, when he had penned the following dictum for his *Wild Sports of India* (1862, *page* 292)—"between the knees and behind the saddle, where the English horse very often falls off, the Arab is barrel ribbed, and this gives him his wonderful endurance, and his great constitutional points. This also prevents his getting knocked up in severe training, or under short allowance of food, and in long marches"—had been asked : How did you *ascertain*, or by what line of reasoning can you *prove*, that the peculiarity of conformation pointed out, and the valuable qualities spoken of, stand in the relation of cause and effect ? Would not the gallant writer have been rather hard up for a satisfactory reply ?

As an illustration of the preposterous way in which theories as to the proper construction of horses are formed, I quote the following passage from the article *Horse*, in that valuable work *Morton's Encyclopædia of Agriculture*. It is from the pen of such an authority as a learner might be expected to look for guidance on the point dealt with, namely, as to how a horse's neck should be connected with his shoulders. That the animal should feed from the ground with ease, and wear a collar with comfort, might be supposed to be amongst the prime considerations. But these points and others of equal importance are passed by, and we read that " the angles formed by the junction of the neck with the body, and by the head with the neck should not be too acute, for such horses are very liable to poll evil from the disposition induced [why so ?] of throwing up their heads suddenly, and thus striking their polls violently against some object above them, such as a low doorway "—a good reason, perhaps, for making doorways high. But what a preposterous line of argument—probably founded on a single accident. What a ludicrously inadequate foundation for determining the correct figure of a horse !

Passages, in which opinions resting on equally flimsy foundations are propounded, might be quoted from the works of other great authorities. (Cecil, Stonehenge, Woodruff, Abdelkader, &c.)

The display of loose reasoning on the part of the wisest of the horse-wise being so frequently conspicuous, when they give their grounds for the maxims which they uphold, one is led to think that at least the methods of deciding the question of the comparative merits of sires and dams should be made as simple as possible.

The usual ocular scrutiny obtaining at shows is, I maintain, of very necessity a wholly inadequate means of gaining reasonably full knowledge of the intrinsic working worth—as distinguished from marketable value, which may rest on current delusions—of any specimen of that intricate live machine, *Equus Caballus*. But even those, who do not appear to perceive that the untrustworthiness of this method of judging is inevitable, are, respecting the actual working of the system, prolific of complaints, couched in such terms as the following—penned long ago, but reiterated often enough since—"Some judges prefer large horses, others a small compact one; one gives the palm to blood, another to power; a third likes large bone; while a fourth is only to be propitiated by a big body.* Action is everything with some persons, and nothing with others; some look at the head; and a few of the more judicious are critical concerning the setting on of the fore-legs, and the position of the shoulder. There is one piece of advice that I can give to exhibitors, and only one, which will be of the slightest practical use: Attend above all things to the condition of the animal which you show. Let him be as fat

* A novelist observes anent the strong liking for one another of two of his characters of the same sex—"The apparent contrarities of their qualities and *structure* perhaps led to this. It is indeed the most assured basis of friendship." (Psychologically considered, this "basis of friendship" is, doubtless, a transmuted sentiment, originally generated in connection with the sexes, the preservation of the type best harmonizing with the environment being thereby favored.) Does not this bias in a man's mind extend even to other than human objects? It would be interesting to discover whether it influences adjudications of prizes at shows of animals: *e.g.*, whether tall and gaunt judges show a leaning in favour of the more stoutly-built creatures, and *vice versa*.

as possible,* and let his skin shine like a star. Never mind the means, but make this your aim, etc." (*Willoughby Wood. Farmer's Magazine, October*, 1853, *page* 364). According to General Daumas (*Horses of the Sahara, page* 65) the Arabs are more reflective. "They attach far more importance to bottom, speed, and sobriety, than to that conventional type of beauty, which is so seductive to our eyes. Thus a stallion, fat, sleek, rounded in all points, and who owes the brilliancy of his form to high feeding, indolence of disposition, or inaction, excites their distrust in the highest degree. They will say of such an animal : 'Let us not be in a hurry. Let us see him at work. There may be possibly nothing there but a lion's hide upon the back of a cow.' But on the other hand, they esteem as a genuine sire a horse for long journeys, whose flesh is firm, whose ribs are bare, his limbs clean, and his respiration powerful. He must also be endowed with good temper, and have given *proofs* of being able to bear great fatigue, privations, and hardships."

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* *Gros, gras, poli* (to quote the description which the gaunt wolf gives of the house-dog in one of La Fontaine's fables) is what a horse must be to please our natural liking, uncorrected by knowledge and reflection. The eye looks for that smoothness in horses which underlying fat gives, because it loves a similar appearance in human beings. (The liking in the latter case is consequent upon provision against dreadful famines having been necessary on the part of our ancestors, who were endowed by Natural Selection with the propensity to lay in stores of this fuel between their muscles all over their bodies, to the extent permitted by the necessities of an active life—a specially desirable faculty in the case of the younger females, who might have to bring fœtuses or young sucklings, as well as themselves, through the time of want; on which account, a whip-cordy appearance in that sex was made by Sexual Selection, and is still considered, detrimental to beauty.) Most of this fat is, however, superfluous in any animals, biped or quadruped, which are sure of their three or four good meals a day; but then, not its own future requirements, but the conditions of life under which its ancestors lived fix *ab ovo* every creature's organization, likes, and dislikes—a fact which makes the words *natural* and *unnatural* often so absurdly out of place when used in arguments relating to a race of beings whose environment has been much altered.

"Acknowledged good judges" is a phrase which frequently slips from the pens of the *literati* of the horsey world. But, by what standard is the capacity of the good judge measured? Are his judgments (on horses not used for racing) ever submitted to a fair practical test?

If exhibitions were conducted on the plan recommended below, there would be less room for such criticisms as the following: "If the decisions which have been given on the present occasion are right," observes one reporter on the last Islington cart-horse show, "those of last year * * were all wrong." Adds a well-known breeder respecting the same awards, "There are a lot of good horses certainly, but they have not given the good ones the prizes; the fact being that they do not know good ones when they are put before them." (*Illustrated Sporting News, 3rd March*, 1883.)

The gentlemen referred to in the last quotation had not, perhaps, made themselves acquainted with a small book called, *Lessons in Horse Judging*, by *W. Warnler*, in the Preface to which we read that, "By using it as a guide, and *thinking out* the subject for himself, the author believes that any one of intelligence may in a very few months, by observation and diligence, become a scientific judge of a horse." But, may be, the necessary intelligence would have to be infinitely greater than has yet been possessed by any being that ever drew on a pair of breeches; and the student, so far from accomplishing his prodigious task in a few months, would in the attempt "exhaust time, and encroach largely upon eternity."

The following complimentary valuation of the capacity of the judges at English shows appears in an article on Clydesdales, by Mr. Thomas Dykes, in the *Live Stock Journal Almanac for* 1880 (*page* 88). "In the South the draught horse only receives a share of attention with hunters, and hacks, or nag horses, and the points suited to their different requirements are not unfrequently jumbled up together" —with results, no doubt, correspondingly satisfactory.

As observed before, most of the factors which go to make up a horse's value are invisible to his critics; and therefore on most important points no judgment could be formed by them, even if they possessed the requisite knowledge. The

practical value of their estimate, after inspection, of the quality of a sire is about on a par with that of a man called upon to reckon the worth of the coming harvest of a farm, with which object he only looks at one field of wheat in January.

If "experience" as regards those points, which are within range of eye, or hand, is relied on, I can only repeat that experience is not to be trusted, unless it is certain that observed effects have been attributed to their real causes. A farmer may have spent his life in observing horses at work, but the reason why one horse in health is less able to do a good day's work than another of like size and age, is commonly so obscure that, if its master be asked the cause thereof, the chances are in favour of his giving a wrong answer. If otherwise, farmers must be endowed with unusual powers of discernment. Proof of the possession of such high faculties would lead one to wish that they were used in connection with the most important problems that claim solution by mankind.

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Judges' opinions as to the lines on which a horse ought to be built are compounded, perhaps, partly of their own so-called experience (otherwise, too often, illogical conclusions from misunderstood data): partly of an illusive smattering of science: partly of natural liking: and partly of the opinions which have permeated their minds, as they listened to the commendations distributed in the show-yard, and elsewhere. But it may be suspected that the fashion of the day as to the best form for a cart-horse (especially) is partly created by the artists, who furnish the "embellishments" for the agricultural magazines, etc., in drawing for which, truth is, more or less, disregarded, if it does not accord with the artist's ideas of symmetrical proportion: or, the points for which the sort of horse depicted is specially noted, are all exaggerated for the sake of effect. These superlative delineations becoming impressed on the imaginations of the persons who consume the publications in which they appear, it comes to pass that the approved type of a cart-horse is to some extent worked up to them. Buyers may thus be misled, as well as breeders,

and a really good horse may be sold with difficulty, because he does not resemble the products of the artist's fancy. Instantaneous photography has now demonstrated that, when galloping horses form subjects for art, false motions of the limbs are (I cannot yet say, were) always substituted for the natural movements—this misrepresentation being so persisted in, that the incorrect attitudes come to be popularly believed to form, for a moment, part of the action, though a man's own eyes might tell him that they never do.* But artists, drawing animals in a state of rest, are often led as far astray from truth by mere fancy.

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That a pleasing exterior and practical value answer to one another in horses is an assumption, which, though common, and often countenanced in books, should be regarded with great suspicion, the probability of any such coincidence being infinitely small. But that horse critics should be to some extent led astray in the matter is not surprising, as we are all apt to make allowance in favor of anything whatever which pleases our visual sense, and to regard unfairly that which does not.

On Arthur Young's observation upon the famous old Suffolk Punch—"an uglier horse could hardly be viewed,"

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* How hard it is to unlearn error, and to substitute truth for it, is illustrated in an article in the *Saturday Review*, which I have just met with. The writer, who has apparently even seen Mr. Muybridge's portraits of galloping horses, seems to have only got halfway yet in the right direction. He has discovered that the usual mode of representing the action is wrong, and puts forward the following dictum as correct:—"Horses have one pair of legs tucked under while galloping, while the other pair is extended." (*Saturday Review*, 14*th April*, 1883, *page* 463). If the writer's eyes are not quick enough to enable him to discern that the legs of a galloping horse do not move synchronically *in pairs*, as implied in the sentence above quoted, he should observe, when occasion offers, the distribution of the imprints of the animal's hoofs on soft ground; or, if he have not the opportunity of so doing, he may be recommended to study Professor Gamgee's instructive diagram of the same, in the *Journal of the Royal Agricultural Society of England (First Series, Vol. XXIV., page* 358).

Mr. H. Biddell remarks (*Live Stock Journal Almanac*, 1878, *page* 65)—"Possibly Young's description is something of a caricature." "The prices given at the early part of the present century could never have been given for animals corresponding to such a description." Here we have good looks emphatically made a test of quality. Because the modern Suffolk has a comely mien, his patrons would have it taken for granted that he is an improvement on his predecessors. It was the custom in Suffolk in old times to have drawing matches—team pulling against team. If we could only get some of the old fashioned punches, for which the high prices were given, resuscitated for a short space, to do a little tugging against their *improved* descendants, we might ascertain whether the improvement extended to foot-tonning in the collar. But perhaps the cup winners of the present day would be ashamed of their coarse-looking ancestors, and wisely decline the contest. Whether the new generation of Suffolks can laugh longer at the freaks of our harassing climate than the old; also, whether it is a better, or worse friend in general to the horse doctor, are questions which we cannot now decide; but I think that it is generally admitted that the modern professional beauty is rather a delicate creature.

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Regarding the matter from a theoretical and philosophical standpoint, a little consideration will, I think, show that the common expectation, that in the degree in which a horse (and the same line of argument is, of course, applicable to all animals) possesses the most desirable qualities, comeliness in his figure will be conspicuous to the eye of the beholder is a highly unreasonable one—unless, indeed, the taste be presupposed to be adjusted to meet the object. Youatt actually imagines that the reverse of this supposition may be true, mentioning a certain muscle, *flexor brachii*, which, he says, works very disadvantageously, and which he considers is placed in its present position, because an arrangement more mechanically advantageous would "look very unsightly"! No species of animal has yet been discovered to have been moulded for the benefit of any other species, and we may very well rest assured, that no one will ever be found with the muscles

naturally arranged with a view to please the esthetic taste of another, however high an opinion the latter may have of his own importance.

In the eyes of those who believe in Evolution "the best friend of man" can only be logically regarded as a makeshift, having both framework and viscera homologous with those of other animals of extremely dissimilar habits, habitats, and aptitudes—runners, fliers, swimmers—mice, elephants, bats, giraffes, seals, squirrels, whales, men, etc., and even, to a large extent, with those of all vertebrates! The conditions of life fashioned the equine frame, and the environment of the period must continue to fix the limits of the possible variations under the influence of selection, whether natural, or artificial. Thus the development of the animal's chest must be regulated by the quantity of oxygen, which he can get into his lungs at each gasp. Can we suppose that the proportion in which the nitrogen is mixed with the oxygen in the atmosphere—namely 4 to 1—was primevally determined with a view to graceful lines appearing on the sides of a horse? The volume of oxygen obtained at each inspiration, and therefore the shape of the animal's body, likewise depends on the density of the air, and therefore on the mass, and consequent weight of the earth; a factor which must also effect the shape of the limbs, etc. Even the speed at which the earth rotates on her axis must rule the creature's shape; for if this planet turned round faster than now, the air would become more rare, a less amount being thus inspirable at each breath: the animal, too, would press less on his feet. (It is curious to note that, if the rate of rotation were increased twenty-fold, centrifugal force would cause him to ascend up into the heavens, if no other catastrophe, consequent thereon, had previously abolished him.)

Had the horse always found his food at the level of his present manger, he would have had no long neck, involving the pumping up of the fresh air all the enormous distance which is now necessary. Again, if horses, when fighting, did not endeavour to tear one another's necks with their teeth, they would never have had their fine (protective) flowing manes. And what sort of a tail would have adorned their croups, if

there had never been any impudent little two-winged thieves, that look upon a horse as a mere restaurant for themselves; or, those other little wretches, the botflies, which lay their eggs on the horse's coat, just within range of his lips, by which they are gathered into his stomach, where the young creatures, when hatched, do "thank the goodness, and the grace that on their birth have smiled."

The same line of argument applies of course to the horse's entire structure. To expect, therefore, any large measure of beauty in the form of an animal, which is not made solely with a view to the gratification of our esthetic taste, and without regard to other considerations, is in the nature of the case most unreasonable.

Perhaps smoothness, glossy and abundant hair, fine and bright eyes—the same being admired in human beings—are the main, if not the only points of horse beauty with most people. But those who look below the surface should rid their minds of any surviving remnant of the common notion that working worth and symmetry--which to each person practically means his own idea of symmetry—are necessarily correlative.

How use and beauty may be in conflict is illustrated in the Californian mustang, if he is correctly described in an American journal as "a coarse-grained, ill-built, ugly, vicious brute, but invaluable on account of his never-to-be-played-out bottom and speed." With what favor would such an ugly beast be looked upon, if it made its appearance at an English show? Would it gain a prize because it was "an all-day horse, tougher than a steak from a Texas through steer"?

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A locomotive may be considered to have been satisfactorily fashioned, if complete fitness for its work is attained; but the same is not necessarily true of an animal engine. For, if the form most perfectly suitable for the labor required of a horse were determinable, the whole design might be flung out by modifications of structure necessary to permit of the performance of other functions—as for instance, the procuration, and ingathering of food (self-defence in some countries); also the processes which are essential to the continuation of

the species—and which might largely conflict with the requirements connected with work. The fact that different parts of the body are at cross purposes works the question of form into a tangle.

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All that might be said to discredit the present hocus-pocus—the hollow, and deceptive system of appraising by superficial inspection—by poking, and staring at them—the fitness of exhibited horses for begetting our future teams, would be to little purpose, if no more trustworthy mode of testing their worth as sires and dams could be suggested. But, happily, other methods, simpler, surer, more scientific, that is more consonant with instructed common sense, are available—provided always that promoters of horse-shows mean business, and desire that their work shall have lasting salutary effect. Otherwise each judge should be provided with a cap-and-bells.

It should be made a *sine-qua-non* of every horse-show, that the merits of each sire or dam seeking distinction must be proved by *actual trial* of its capacity to perform the sort of labor for which the progeny is intended. Collars should be put over the heads of those animals, passed as sound, from whom it is intended to breed draught-horses, and they should be made to compete every day, for a week at the least, at the work of drawing in carts loads equalling, say, twice their own respective weights, or a lesser amount, if the state of the roads or track is bad. Usually, perhaps, the most advisable test would be one of distance travelled in a fixed period—not less than ten hours a day—the show to find drivers, and no castigation to be allowed. Or, the competitors might daily be made to perform a journey of about 30 miles, the distance which each horse can, on its return to the showyard, draw its load with its remaining force in one hour, furnishing the grounds for the allotment of the prizes. Such a proceeding would indicate roughly which horses possessed the most desirable combination of strength, activity, and endurance. The method would be far from perfect, but would advantageously supplant the present farce, which proves nothing whatever—as regards the quadrupeds. With this system in force, mere lumps of adipose tissue would be at a discount—as

horses, and might be offered to the makers of bear's-grease, or bosh-butter.

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A breeding animal is properly looked upon as one, which, with more or less exactitude, hands on qualities from ancestors to progeny. A horse may not be a first-class performer himself, and yet be a transmitter of the primest qualities: as though there were an element of alternate generation even amongst mammals. To put, therefore, a competitor's parents to the working test proposed above for the exhibit himself would lead possibly, as regards the value of the *next* generation, to safer conclusions than even the efforts of the exhibit himself. But this course would rarely be practicable. If, however, the system advocated in these pages were once fully established in its integrity, a farmer, that wanted a sire for use on his mares, would have a chance of learning so much about the ancestry of any stallion, whose services were offered to him, as to know what qualities he would be likely to transmit.

Mr. Chaplin, M.P., when speaking in Parliament (*Hansard, Vol. 223, 27th April*, 1875) on the subject of stallions, makes the remark—"the test of whose excellence was not so much what they were themselves, as the quality of the stock which they begot." But this is rather a treacherous test. A sire may himself be a sower of good qualities, and nevertheless get discredit from his offspring, when in truth the fault lies with the mares, with which he has been mated, and which might have done worse with other horses. We must, moreover, wait very many years to discover what his issue are really good for; whereas, if we turn our regards to his parentage, the information desired is, when obtainable, ready made. Indeed, if we are looking to racial improvement, we should have to regard so many generations of his descendants, that the horse, whose value as a transmitter we wish to discover, will, before the evidence is gained, have served the secondary, and less exalted use, for which horses are destined. How much wiser, therefore, to look to his ancestry than to his progeny, to ascertain what qualities a horse will transmit to future generations. Of course, neither way is infallible. Were there no

inexactitude of transmission, our chance of improving a breed would be lowered.

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In his *History of the Shire Horse*, Mr. F. Street claims that in starting a stud book, "the Shire-horse breeder has taken a leaf out of the book of the admirers of the race-horse." (*page* 1.) Would it not be well, if the Cart-horse Society now took another leaf out of the book of the race-horse breeder, and estimated stud animals for the future, not by their looks, but by the achievements of themselves, and their progenitors—taking a glance also at the *proved* capacities of their other relatives. I should advise the starting of a new stud book, the entrance to which can only be won by demonstrated ability for hard work. Should this suggestion be adopted, I should venture to hint another, namely, that the present cart-horse stud books, inasmuch as they can only give information of a misleading character as to the relative practical value of sires and dams, should be utilized for a bonfire to celebrate the new kick-off.

In another paragraph of the same work (*page* 57) it appears to be affirmed that, whilst everywhere else than in the London Cart-horse Shows it had been "too much the practice to give prizes to beautiful weeds; and to offer premiums to such to disseminate their hereditary weaknesses to their progeny," the Shire-horse Society had done everything necessary to abolish these pests, by instituting a veterinary inspection at their exhibitions, and by making a regulation to the effect that "no award will be made to any animal which is not free from disease, detrimental to breeding sound and healthy stock." But is soundness everything? Are there not in existence sound and beautiful weeds: that is to say, horses which are healthy enough, and which are at the same time but indifferent foot-tonners—without great muscular force, bottom, and many other useful qualities, the mere absence of which does not constitute unsoundness?

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Horses might be granted separate prizes, or certificates for proved *longevity* of forefathers. This is a proposal which, I

daresay, looks rather strange at first sight, but one which is nevertheless rational enough: for, longevity is inheritable, and is a valuable quality in itself, independently of what other worth it may indicate. Short-livedness in the stock from which he sprang ought to exclude a horse from the stud, unless he be exceptionally good in other respects. I am supposing that the lives of several generations of ancestors are regarded, and therefore of so many individuals that a general average of treatment may be presumed.

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In the adjudication of prizes to colts and fillies, the imbecility of judging by appearances attains its culmination. To read indeed the reports on the unformed young creatures brought forward at shows, and to observe the naïve confidence with which judgments are framed on their undiscernible fitness for future stock-getting, is really quite amusing. It would be less so, of course, if it were understood that they were purely fancy animals, intended merely to breed foals, which might in their turn win prizes at shows* from like-minded judges. But such is not the case. Judges of colts and fillies, in contravention of the good adage—"Never prophecy unless you know"—pretend to foretell what quality of workers these young animals will some day engender: or, at least, what they themselves will be good for. Upon what grounds can they go? A colt is not in shape a miniature of the future horse. A yearling can be distinguished from a full grown animal ever so far off. Suppose a man has seen a great many colts and fillies grow into horses, some proving good and some bad, years must have elapsed between the period of their colthood, and the time when good proof was obtained of their efficiency: and it is beyond belief, that any one can have carried in his mind what the good and bad horses were respectively like in their youth so distinctly, as to enable him to judge of the native merits of other young animals brought before him. This consideration is, therefore, in the case of

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* *Shows* they are—not sources of horse-improvement, not "stepping-stones to higher things" in horseflesh—unless measured by hands.

youngsters, piled upon that before dwelt upon, that it is a mere chance whether the goodness or badness of the adult horses are attributed to their right causes. If the judges realized the fatuous futility of the undertaking in which they engage, they would surely, like the augurs of old, burst out a-laughing in one another's faces.

Though so much may be learnt of the value of a sire by ascertaining the foot-tonming capacity, the general healthiness, longevity, and other particulars concerning his forefathers, that is no reason why we should lessen our opportunities of improving our breeds by depriving nearly all colts of the power of ever transmitting their qualities years before their excellencies have been further shewn by their own achievements. To meet with a case of superexcellence in a gelding begets a regret that he was improvidently robbed of the means of sending down his good qualities to countless descendants. No horse should be gelded till years of labour with saddle or collar have shown him to be below par as a worker; or unless he have, or may reasonably be expected to have inheritable disease, or a predisposition thereto: or, unless a clear manifestation of a fault, such as viciousness, stamp him as unfit for breeding purposes; in which case orchotomy should be enforced; or some other steps should be taken to ensure his dying without issue.

The great advantages to be ultimately reaped from the practice of using for breeding purposes only the most really stanch and useful horses, would far outweigh the inconvenience and extra expense entailed by keeping many stallions on a farm. They might, indeed, have to be housed in separate boxes (as all horses ought to be for comfort sake); and must be soiled at home, instead of being turned loose into a field in the summer: but this is a plan recommended by many for all farm stock. Entire horses can be worked together as well in England as in other lands. The Ancients never cut their horses. Many stallions are, it is true, vicious and violent; but this fact should in time work its own cure; should indeed lead to a general improvement in the temper of horsekind; for since the choice of stallions would be enormously increased by the adoption of the course proposed, those

naturally sour-tempered and unruly need never be used. Gelding would be a proper proceeding for brutes pronouncedly malign. But with the selection of sires so limited as it is now, such a demerit as viciousness is seldom likely to lead to the refusal of a stallion's services. If we were determined to abolish him, the caco-dæmon on four legs might in time cease to be seen in our stables ; for viciousness in horses is mainly a question of inheritance, the influence of training, as compared with transmission being always greatly over-rated (though not perhaps to such an egregiously fallacious extent as in the case of human beings). Such an old hand as Mr. Hiram Woodruff maintained, indeed, the contrary. "I am convinced that nine out of ten of the horses we find mischievously disposed, or even positively vicious, or treacherous, are so by reason of having been improperly handled when young." (*The Trotting Horse of America, page* 52.) Had he stopped there, his opinion might have had weight. But he adds a remark which appears to be meant to support his assertion. "There was Dutchman—he was not a sulky horse, or vicious by nature. You could get him to do his best, whenever you called for it on the course, but in the stable, look out!" That a horse would go ahead on the track with a whip behind him was evidence enough that his viciousness was not natural, but artificial!

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At the present time the serviceableness of our heavy breeds (and the same is more or less true of other grades) is kept up to the indifferent standard at which it sticks mainly through the mares, which are made to go through the ordinary rough work of the farm, whilst living on common diet, as every stallion ought to do. Natural Selection, then, to some extent makes good the absence of rational principle from our purblind practice : for, the mares of least stamina and bodily force, succumbing at an earlier age to toil and disease, leave fewer offspring than the stronger and hardier.

It is probable that after the same fashion Natural Selection has played a more important part than artificial selection in the evolution of even the best breeds of horse in the world. For ages the treatment, as regards both work and food, which

horses have received at the hands of the needy nomades, who owned them, may be suspected, from what now occurs, to have been so hard, that those of the lowest powers of endurance have been tortured out of existence at an earlier age than their tougher and stouter comrades; and have thus not had the chance of being so largely represented in the subsequent stock. Given a sufficient time for the process, and the breeds of horses raised by races of men, who, like nature, treat the animals with ruthless rigor, will be better than the breeds raised by those who treat the individuals in their possession with judiciousness, and consideration—unless the system of artificial selection in vogue with the latter is founded on right principles. It is often assumed that because an existing race of people has in their possession a very good breed of horses, their treatment of them must necessarily be commendable. This by no means follows, as must be evident to that very small class of persons, by whom the work of Natural Selection in culling out the weakest of each generation is understood and appreciated.

Though no advocate for much governmental interference with private enterprize, I think it would only be consistent with our practice of using coercion to stop the spread of infectious complaints amongst cattle, if laws were also made to prevent the transmission of unsoundness in horses, or proneness thereto. Not only should propagation by individuals possessing inheritable disease be prohibited; but, unless in exceptional cases, the use of either sex for breeding under the age of *ten* should likewise be made unlawful. By that time the tendency to fall a victim to inheritable maladies will be more likely to have been made manifest than at an earlier age. The prohibition would also, by delaying the time at which horses are allowed to reproduce, have incidentally the good effect of giving time for their real value as workers to become known.

If horse-shows continue to be conducted on the present make-believe system, a young man about to stock a farm, re-

quiring many horses, would do well to pursue some such course as the following for keeping his stable full. Half his horse stock should be of the description, which the French interpreter styled *un cheval de pierre*—an expression which he is said to have further developed, for the enlightenment of the custom-house clerks, into, *un cheval qui couvre les officiers municipaux*—at least so says Southey. (*The Doctor, chap. CXXXVI.*) Half his number being stallions, the other half should be mares. When these horses have been at work for several years under his own eye, he will have before him the simple question of their relative practical value, judged, not from the impression, which their figures make on his fancy, but from their work in harness; and from the length of their respective doctor's bills: and he will be able to single out the most desirable stallion to use for making good future deficiences in his stock. Snapping his fingers at lumps of tallow, though they may win more cups at *shows* than they can draw along the high-road, he will mate this tried friend with such of his mares, as have likewise won his approval. If the sire's coat is glossy and his eye bright, he will know that these attractive appearances do not spring, as is too often the case with the deceitful led horse, from the inward application of noxious drugs, obtained by the groom from the "chemister." And the animal will not be dosed with aphrodisiacs to give it an appearance of eagerness.

On account of the evils arising from breeding in-and-in (admitting the truth of the current opinions on this point), this plan could not be indefinitely carried out in its entirety on one farm; and, therefore, an arrangement would be desirable for an interchange of services, if neighbouring agriculturists pursued the same wise course. Otherwise our farmer would have, after a while, to introduce some stallions of fresh blood to compete by many years of hard work for their master's highest approval.* In the former case, close

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* I do not mean that they would do so consciously, for I apprehend that the notion that horses appreciate their master's approbation, or have any of that regard for him that his dog has, is purely fanciful, and, in fact, belongs only to the spurious Natural History of the novelist and his like.

breeding would be avoided through the friendly co-operation of all those in any one district, who keep many horses. Service must always be *gratis*, that no owner may have a pecuniary interest in vaunting for this purpose the excellence of his own stallions, as compared with those of his neighbours. The accommodation would be mutual, and all would be gainers. This would be an exceptional case of something, of much value, being had for nothing, the donor, if his powers be not overtaxed, being benefitted by the gift. The mare would visit the horse, when *maris appetens*, he and she each performing his and her daily tasks.* The sire would not, as now, waddle about the country roads, disguised in unctuous offal, plastered on to his sides through the agency of some expensive special food. The guineas for the mount, too, would no longer have to be added to the other too numerous expenses of producing a foal: or, wasted altogether over an abortive attempt to attain that object.

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The creation of a class of horses giving good value for the money expended on them from first to last would be a great boon to any trade. Other large employers of these beasts of burden, besides agriculturists—such of them, at least, as do not look solely to the dividend for the current half-year—should breed their own stock from those horses in their service, which, looked at from all points of view, they considered themselves to be most fortunate in possessing. This would entail the cost of remunerating farmers for taking the mares, when gravid, or with foal at foot: but this expense is now, of

* The daily journal, which is distinguished amongst its fellows for its success in crowding its columns with erroneous statements on all subjects, delivers itself of the following in its report on the last Islington Cart-horse Show (*28th February*, 1883). After stating that it has "been proved by experience that a robust, young, healthy mare, kept in proper condition, will breed a colt besides performing her share of labour in the team,"—that is, that two animals can be kept at the same expense as one—the writer adds that the "great difficulty in carrying out this system has always been the impossibility of relying on the travelling entire horses for service, as, if employed, the mares are tolerably sure to go barren." This is the truth reversed.

course, practically incurred, whenever a man buys a horse—good or bad. Were the system not adopted in full, it might still be followed to the extent of the horse-employer using his own most approved stallions on the farmers' mares; and taking, or at least having the refusal of the foals as soon as weaned. If, following the latter system, he kept stallions alone in his service, he would only have to use as a sire the best horse out of every 50 or 100. This would give him a fine opportunity of improving the quality of his stock. For, as is easily seen, the greater the number from which the selection is made, the greater the chance of finding amongst them a sire of exceptional superexcellence.

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No service employing a large number of horses would, I suppose, be more likely than the *Army* to benefit by the substitution for the present benighted system of purchasing, as they can be got, animals selected on the grounds of an untrustworthy autopsy, the plan of raising supplies from sires and dams, which have proved themselves to be excellently well adapted for a peculiar service. Experience of Government studs in India, and elsewhere has not apparently brought such establishments into high favour. But the question is: Have they been conducted on national principles? I mean as regards the selection of sires and dams. On this point I shall venture to make a remark or two further on.

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Military horses should form a caste, or *gens*; or rather two, one for the saddle, and the other for draught. In discussing this phase of our subject, it will be sufficient to speak of one branch only of the service, and I will take the cavalry. The case of the artillery, etc., will be pretty nearly analagous as regards the points dealt with.

At present a troop-horse may be able to claim no better descent than, say, from some ancestors, which were good, or bad race-horses; from others that were good, or bad cart-horses; and from others of intermediate grades of varying quality. He ought to be able to boast a lineage from

ancestors on both sides, which proved themselves, during long periods spent in the service, to be peculiarly good cavalry horses. He ought to be a thorough-bred war-horse.

The main facts to be relied upon in considering this question are: first, that horses differ immensely as regards all their qualities—health, strength, endurance, viability, temper, docility, teachableness, etc., etc.: secondly, that a horse obtains his natural characteristics from, or through, two sources—the one being his father, and the other his mother; and, thirdly, that an enormous number of foals can be begotten by one stallion. *King Herod* was the sire of nearly 500 winners!

Copenhagen—a thoroughbred—the favourite charger of Wellington, was ridden by him at Waterloo for eighteen hours, and at the end of the game was brisk enough to fling up his heels, when his master dismounted. He lived for 20 years after. Had *Copenhagen* been used for breeding remounts, it is clear that before he died—a grand old horse—at the age of 29, every cavalry soldier in our army might have been mounted on a steed, which had either half his noble blood, or three-fourths of it, or seven-eighths—beyond which point in close breeding it would not, perhaps, be safe to go, even with the best of horses. Surely this would have been a fine foundation for our cavalry *gens*. At 400 guineas—the price at which he was bought by the Duke—a *Copenhagen* as a sire for army horses would have been dirt cheap. If, however, Government sent experts—so-called—to buy untried stallions at such a price in the market, doubtless failure, even if such admirable Crichtons are still to be found, would result through error of judgment in the choosing.

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The following scheme for horsing the Cavalry is submitted as being, all things considered, in theory at least, a more rational system than that now followed. Having no military experience, I put it forward with the greatest possible diffidence—that is, as regards points, for right reasoning on which military knowledge is requisite. In other words, though con-

fident that my distrust of the judgment of those, who profess to undertake the (impossible) task of appraising the worth of this most elaborate and complex piece of machinery from his outward appearance, rests on good grounds, I am not prepared to say that the plan proposed in substitution of the present method of obtaining supplies, would not prove impracticable from difficulties not apparent to a civilian.

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Of the horses which the authorities now buy annually to maintain the usual home establishment of 7,000, those for half the regiments should be stallions. Out of these, some—the very small percentage required to serve as sires—could not fail to be very superior to the average: for, such would be found to be the case amongst every large lot of horses.

Being bound, hand and foot, to the old notion that cavalry men must be big, we must have horses in some degree corresponding in this respect. If it were deemed desirable that only small targets should be presented to the enemy's bullets, we could make a short cut to reach our cavalry *gens* by starting with the horses of the Sahara, and of the Asiatic plains.* But we should still have to rely for our artillery caste upon a bigger sort.

The selection of stallions for military stud purposes out of the 3,500 in the rank, should rest on *practical trial.* The officers, under whose eyes the evolutions are performed, would have to judge of the general suitability of each horse for military purposes: whilst (and this is the main point) a thorough-going competitive ordeal should decide the im-

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* It is stated in the report made by the Military Attaché at Berlin to the Foreign Office (*17th April*, 1873, *Lords' Committee on Horses*, 1873, *XIV., I., page* 346) that "the endurance of the Prussian far exceeds that of the English trooper; they better endure exposure to the weather, and are found to thrive and keep their working condition on a smaller ration of forage,"—a superiority which is attributed to the fact that "these horses are more nearly related to the Arab than are the English." Reduce the standard of the English bifurcated target, and our cavalry horses might be so nearly related to the Arab, as to be able to claim from him immediate descent, with corresponding advantages in innumerable good points.

portant point of superior stoutness. For this purpose all the stallions in a regiment, which are deemed sound, and are considered to be well fitted for military requirements, should be ridden in company, at an equal and somewhat rapid pace, carrying equal weight, fully equivalent to that which would have to be borne on service. Each horse should be withdrawn from the contest so soon as it exhibited unequivocal signs of distress: and so the game should be kept up, until only one horse is left on the track—and he will, probably, be usually found to be well-bred: for, notwithstanding handicaps, short courses, and other regrettable circumstances connected with modern racing, the good qualities of the desert ancestor are still largely infused in many English thoroughbreds. (Nearly all steeple-chases are won by thoroughbreds. *Encyclopædia Britannica*, article *Horse*.)

Single contests should not be relied on, lest the really stoutest horse should have failed to have done his best, through being ill-ridden, or from being temporarily out of sorts: but the competition should be frequently repeated, with change of riders, say once a month, or ottener if necessary, to determine which is truly *the* stallion most worthy, in this respect, of the honour of being the sire of steeds, which will be liable to heavy marches in actual warfare.

Eventually, if found to be more convenient, some of the horses might be made geldings, if emasculation were effected *after* their inferiority was proved at these competitions, or by the veterinary records. Of course, if perfection were the only aim, and consideration of immediate expenditure set at nought, there should be, until the thoroughbred warhorse *gens* was established, a continual replacement of the defeated stallions by fresh competitors from outside.

Information as to each stallion's soundness, general health, and the like, should appear in regimental veterinary records. Those relating to his progenitors, as well as those connected with himself, should be consulted before a stallion is ordained as a sire.

Half the regiments of cavalry being horsed on stallions, the remainder should be furnished with mares, a sufficient number of which, selected on principles similar to those

detailed above for their mates, should yearly be relegated to the stud-farms.

By some it may be thought that since a stallion, if he have plenty of exercise, will serve one hundred mares in a season (though fewer is better), the number of the latter in the service should bear to the former a proportion somewhat corresponding to this fact. What the most desirable proportion—that is, the proportion which would lead most rapidly to the improvement of a breed—would be, is, however, indeterminable. It is to be noted that in those tribes of animals, in which polygamy prevails, about as many males as females are usually brought forth, just as among species that pair, instead of only just so many males being produced as are actually required by the females. The advantage of this is evident; for, since a polygamous system denies as a rule nuptial privileges to the feeblest males, the new generation spring from more excellent sires than most of them would do, if just so many males were born, as are necessary for impregnating the females. Whilst, therefore, on the one hand, it is certain that the larger the number of mares, the better would be the average quality of a given number of the best of them; on the other hand, the very fact that a stallion can beget so many foals is an argument for increasing the number, from which the selection of sires is made. Upon this principle, we will suppose that the stallions in the army should be as numerous as the mares.

To keep up the home establishment of Cavalry of the Line, not more than 500 young horses would probably be required annually to replace those cast, if they were bred on better principles than those in vogue with the breeders of the present supplies: for only about ten years' service are, I believe, got out of those now bought for the cavalry at three, or four years old.

To allow for 100 mares or thereabouts to be withdrawn from the regiments every spring for the purpose of replenishing the seraglio, 350 females would have to join the ranks yearly, the remaining 250 remounts being entire males. Since mares that proved persistently barren, those that slipped their foals, or that in any such way proved themselves to be unfit

for breeding, would be sent back to the standards, our 600 young horses might be obtained from 900 brood-mares. Allowing for 100 mischances after birth out of, say, an output of 800 foals, there would be 700 four-year-olds: out of which, the sexes being born in about equal numbers, there would each year be 100 redundant colts for sale—with good pedigrees. Or, these latter might go into the ranks, and a corresponding number of old horses might be withdrawn therefrom. These latter having received a military training. might, if an eye were kept on their whereabouts, be regarded as a sort of small reserve, to be brought back to the ranks at a pinch.

Basing my proposal for the institution of a cavalry caste of horses, to be engendered at Government studs, on the grounds of efficiency, I shall not attempt to add a page of £. s. d., shewing pecuniary advantages arising from such a plan. Figures founded on the current prices of hay and corn—the main considerations—might not hold good for long. But I may observe that, since the price of provender—hay especially—varies greatly in different years, Government, not being so short of capital as farmers, ought to be able to make provident purchases in years of plenteousness, and to rear their youngsters with corresponding economy. Further, if the studs were near the camps, the outgoings usually connected with covering (averaging, perhaps, ten per cent. of the total cost incurred in producing a horse) would be almost entirely saved.

The failure—as in India—of Government studs, stocked on the fallacious system of commissioning an "expert," to obtain in the market animals of unascertained character, and of parentage unknown, or, of some sort of repute, which is merely misleading, whose forms happen to meet his views,* is no

* Some instructive, not to say amusing, correspondence, connected with the purchase of sires for the purpose of improving the horse stock for the army in India, appears in a Parliamentary paper on *Indian Studs* (*69, 1874*). An odd contrast is presented by the high value set by great horseflesh authorities at home upon the stallions selected by a noted London "expert," and the contempt with which the animals were regarded, on their arrival, by the Stud Committee in India.

argument against the institution of such establishments for breeding remounts, from parents of known worth and suitability; and with the further intention of in the end producing a fixed caste of steed (as on the turf), which could be relied upon to produce supplies of the stamp which the cavalry requires.

Could one expect the commissioned "expert" to give satisfactory replies to such questions as the following, respecting the future produce of any horse submitted to the criticism of his eye? "Will his progeny readily go lame? Will they be prone to become brokenwinded? Will they be liable to dangerous attacks of bowel complaints? Will they be of great endurance? Will they be of strong vitality, and be likely to stand hard work in the ranks for many years? Will they possess the invaluable propensity to lie down during the hours devoted to rest? Will they be easily broken to their work in the ranks, instead of requiring the very prolonged tuition usually needful for European horses? etc., etc.?"

Perfect animals will never be produced. In horse-breeding we shall never be within measurable distance of mathematical accuracy. But, looking back to a stallion's ancestry for three or four generations only—paying due regard to the record of the demonstrated qualities of his *stirps*, as well as to the practical manifestations of his own real powers and merits—would be a *fiat lux* on most points, compared with the delusive system of judging of his gifts from his apppearance—a practice which is, in truth, mere charlatanism.

Rome was not built in a day; and, maybe, it would take several generations to create, by the course above proposed, as good a cavalry steed as is possible. But there can be no doubt that the sons, and, still more certainly, the grandsons of the best out of any lot of 100 horses would be vastly superior to the average of such a lot. If reasons exist for continuing the present darkling and haphazard system of selecting troopers from the supplies of horses, which chance to be procurable in the market at the price allowed by the authorities, so much the worse—when the bottom-testing campaign comes.

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Leaving the special question of the cavalry horse, I will add a few observations bearing more generally on the subject of this pamphlet.

The horses to be employed at harem work having been fixed upon, the best of the best should be used for the youngest mares: for, there is reason to believe that the characteristics of each male are more or less reproduced (through the female) in the offspring subsequently begotten by other fathers. (And perhaps, therefore, strange as it may seem, the character of the female herself is, through the fœtus, modified by the masculine element of each male by which she becomes impregnated!)

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In what proportions the offspring inherits qualities from sire and dam respectively, remains a moot point, though confident assertions on the question are to be met with in abundance. It may be suspected that the result is not determined by physiological law only, but that in each case the amount of the influence of each of the parents is liable to be affected by mechanical circumstances, existing at the moment when they do the deed of kind. For, in order that impregnation may take place, a certain number of the (fully developed, and vital) sperm-cells, contributed by the male, must wriggle their way through the porous canals of the covering membrane (*zona pellucida*) of the egg, so as to become amalgamated with the formative yelk inside. To which end they must clearly come into actual contact with it. It is reasonable, therefore, to suppose, that the degree in which the offspring takes after either parent, rests, partly at least, upon the number of the male cells that do so find their way into the germ-cell: which again must depend in some measure upon the number which collide with it, whilst they are still vital: and it is plain that mere mechanical reasons may affect this matter. The proposition is that, supposing that the entrance of a given number, say, ten sperm-cells into the ovum secures an equal transmission of qualities from either sex respectively, when a smaller number succeed in effecting an entrance, the offspring will favour the mare more than the horse: whereas, if the number be larger, the reverse will be the case.

This hypothesis may be valid as far as it goes, and there may yet remain some truth in the theory, that the parent, which is most purely bred—that is, the one whose *stirps* has been bred for the largest number of generation to one type—will have prepotency of transmission, and will be most fully

represented in the produce. In each proposition, "other things equal," is presupposed.

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The following maxim is, according to Stonehenge, one of the "laws which govern the generation of the mammalia." I quote it here for the benefit of those who are able to comprehend what is meant. "When some of the elements of which an individual sire is composed are in accordance with others making up those of the dam, they coalesce in such a kindred way as to make what is called a 'hit.' On the other hand, when they are too incongruous, an animal is the result wholly unfitted for the task he is intended to perform. (*The Horse in the Stable and the Field, by J. H. Walsh, page* 139). It seems to be asserted that, if you mate your animals properly, success ensues, and it is called a "hit," and *vice versa.* But from the scientific tone of the axiom, I judge that there is an intention to convey some information therein, however obscurely.

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Scientific reasons, and a due regard for the doctrine of averages, assure us that horse breeding—even racehorse breeding—on a scale extended enough for a reliable average to be struck, cannot be such a haphazard business, as it is proclaimed by some, who call it a "mere lottery," because they miss their immediate aim. Their experience may be that

"Oft expectation fails, and most oft there
Where most it promises; and oft it hits
Where hope is coldest, and despair most sits."

Nevertheless it may be safely assumed that, *cæteris paribus*, the average speed of a stock of horses sprung from one hundred winners of fairly run races will be higher than the average speed of a stock sprung from the one hundred horses, that ran second only at the same competitions; and that the latter will surely be faster than the descendants of those that ran third. The principle will, of course, hold good for other qualities, besides those for which racehorses are most esteemed.

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Although 33,000 foot-pounds per minute is reckoned as one horse power, "Mr. Smeaton found that 22,000 lbs. [say 10 tons] raised one foot high per minute is as good a performance, as can be had from horses of average strength working eight

hours a day" (*Bourne's Steam Engine, page* 119). To get this work of 4,800 foot-tons out of a horse, food equivalent to not less than 25 lbs of good oats must be given to him (not reckoning days of rest). The labour thus obtained is less than the potential energy in one pound of coal; and, therefore, only as much power is generally obtained from a cart-horse during his working years as is contained in about two tons of the mineral. (It is said, however, that nine-tenths of this is wasted by even the very best engines yet made.) I merely mention this as an interesting and noteworthy fact, without intending to build any argument upon it, as to the possible maximum working power which is to be got out of horseflesh, as such reasoning would, of course, be most fallacious, our knowledge as to the ultimate disposition of the force value of an animal's food being altogether insufficient to be any guide to us as regards this limit. Any expectation of a general increase in the power of horses can only safely rest on the known deeds of specimens, which are as yet exceptional; and on the palpable fact that hitherto only absurdly inadequate methods have been adopted to bring by means of selection for the stud all sorts of useful horses up to the highest standard of efficiency physically possible.

By the way, perhaps, some encouragement in anticipating improvement may be given to us by a donkey: for a she-ass (*Equus Onager*) now in the Zoological Gardens, at a supposed age of six months, being then only 9 hands $2\frac{1}{2}$ inches high, ran 40 miles in $3\frac{1}{12}$ hours, and was then only stopped by a lyer-in-wait, being, though the herds had often been chased, the first specimen caught, and, therefore, probably, not exceptionally stout and speedy. It may be doubted whether there is any six-months old filly in England, that could display equal powers of endurance. Finding that Natural Selection can give such stoutness to the wild *Equidæ*, we are the more induced to believe that artificial selection has not yet effected all that it might in endowing our whole caballine stock with this valuable quality.

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What pitch of working excellence would be attained by an absolutely perfect system of selection of sires and dams, it would be futile to enquire. What lower degree of goodness may be actually reached by the adoption in full for a worthy object of the system, which is almost exclusively relied upon

by horse-breeding turfites with their low gambling aims, it is also impossible to say without trial. But, judging from the powers which individual horses have shewn horseflesh to be capable of, it is not an unreasonable expectation, that, if only the horses indicated by rational tests to be the best of their generation, were allowed to breed, as much work as we obtain from our present expenditure on horseflesh might be got for half, or at most for three-fourths the cost—saving to the nation, I daresay, from ten to twenty millions sterling per annum.

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Mammals are very indifferent pieces of machinery ; and, as force-producers the best are not to be compared with some other vertebrates—*e.g.* some birds, as pigeons: or, swallows, which travel 800 miles a day, supporting themselves all the while in an ambient medium of but slight buoyancy: or, with insects—ants, for instance, which run straight up a wall with considerable weights in their mouths; and gnats, which can give 1,500 strokes with their wings in each second of time. Nevertheless, though a horse, owing (largely) to the inferiority of the organisation of the class of animals to which he belongs, with its roundabout system of blood aeration—derived from that ancestral mudfish that first used its swim-bladder as a lung to breathe with during its excursions on land—can never be anything else than a (comparatively) sluggish tardigrade (making such ungainly attempts at leaping, as must be a cause of great hilarity to any casual flea on his back), the food which we bestow on the race might be put into less wasteful fireboxes than it commonly is by the benighted English horsekeeper.

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If the author of this pamphlet acknowledges that he has not had so extended a personal acquaintance with horses as most writers on the subject can lay claim to, some readers may, perhaps, question whether he was warranted in undertaking his task, seeing that it largely consists of an endeavour to put an end to ideas and usages, which are generally assented to by those, who have during all their lives been very familiar with the animal. Some may also, perhaps, think that it rested with a writer, who casts doubts on the worth of the decisions of trusted judges, to show that their adjudications are, as a rule, actually faulty. But such objections should have no place in the

minds of readers, who have discerned from a perusal of the foregoing pages, that the author has not been founding an argument upon the supposition that he has such a good eye for the properties of horses, that he is able to detect the errors of the judges of the show-yard: but that his contention is that the task which is ordinarily undertaken by them, is beyond all human capacity.

He considers, indeed, that the *onus probandi* rests with those, who uphold the present system; for that the fourlegged puzzle, which is trotted into the show-ring is of such undeniably great complexity, that distrust of the conclusions arrived at is on that account alone fully justified, unless fair proof of the general correctness of such decisions is forthcoming. Any one who agrees with him in this respect, cannot fail, he thinks, to have his first doubts augmented by an extended perusal of the works of the chief authorities on horseflesh—with their limping logic; their broken-winded arguments; their mutual confutations; their self-contradictions; and, not least, their idle and irrelevant references to what they call *Nature*, and her supposed work, and imagined intentions.

Now the author makes bold to suggest to any one who has hitherto flattered himself, or has been informed by his friends that he is a "good judge of a horse," to *ask himself* whether he really knows half—half! one twentieth part as much about the matter as he gets credit for: whether he could stand an inquisition as to the foundations on which his pet maxims, and his opinions on points rest—could answer questions running—How did you ascertain this? or, on what grounds do you conclude that?—without raising a laugh at his expense from men of more logical minds. Many questions, which might be asked, he would not, perhaps, undertake to answer: as, for instance, what sort of an operator any given horse is as regards mastication, insalivation, digestion, chymification, chylification, sanguinification, blood-aeration, circulation, excretion, secretion, tissue-formation, heat-generation, innervation, sensation, cerebration, and other important bodily functions, though the measure of its ability to perform such processes with ease and completeness, must deeply affect the value of an animal, from which much labour is expected in return for the cost of its maintenance. Now, although faultiness or efficiency in the performance of these indispensable organic operations are not to be discerned, or but to a valueless extent,

by outward signs, a general competency to perform them well may reasonably be assumed, when a horse gives practical demonstration, that he is capable of prolonged heavy labour without breaking down under it; and when also proof is forthcoming that his ancestors were of like ability, and lived long lives, notwithstanding the tax on their physical energies.

Surely, therefore, the test of the relative worth of sires and dams should, on all accounts, be one of greater validity than that of outward show (in which the animals may be made to play the part of involuntary deceivers), and for the present make-believe a surer touchstone should be substituted.

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The system advocated in these pages of breeding only from those horses, whose inheritable qualities have been in some degree ascertained, would be facilitated by a general *registration* and *marking* of all foals dropped. Though established for stud purposes, such a register might incidentally be made very useful to every purchaser. The year of birth should be on one foot. Imported horses should be marked with an I instead. (The age of every homebred horse being thus made conspicuous—though, perhaps, rather annoying to the females, as they became old—horse-dealers would be able to go to church on Sundays, instead of spending the day, as now, in subjecting poor thralls to the torture of having their teeth filed, in order to make them seem younger than they are.) The letters of the alphabet, large and small, the numerals, and some other signs (*, †, etc.), would collectively be sufficient in number to serve the purpose of identification of individuals (amounting in the aggregate to many millions), one mark being placed on each of three hoofs. For fees the registrar should furnish applicants with information respecting the ancestors of any horse (registered, for instance, thus: Male. Off fore 83: near fore †: off hind R: near hind t.) with particulars of length of life attained by them, and cause of death; also information relative to prizes won—if ever they come to be distributed on rational principles.

The considerations that the horses at work in the three kingdoms are worth between fifty and one hundred millions sterling; that about as a great a sum is annually sunk in the provision of provender for them; that an amount equal, perhaps, to one fifth as much is yearly expended in producing young horses to replace those worn out; and that they perform

work of immense, but incalculable value; and that in this respect there is a greater prospect of increase than of decrease, would be sufficient justification for the establishment of the system of registration proposed, notwithstanding its (comparatively slight) contingent cost to the State: as well as for the enactment of laws protecting the marks, and for compelling horse-breeders, dealers, and others, under penalties, to furnish the registrar with all the information that he may demand.

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In conclusion, I must add, that to me it appears, that the methods advocated in this pamphlet may be recommended on the grounds of humanity. It is true that drastic tests for the discovery of the sires and dams, which really possess the highest qualifications are proposed: but nothing more exacting is advised than about that degree of hard labour, which is voluntarily undergone by men for sport; or, at athletic competitions, for laurel crowns, before the "store of ladies, whose bright eyes rain influence and judge the prize." Such an amount of severity, inflicted for the purpose of culling the weaklings from our studs, would be more than justified by the production of horses of greater ability to endure hardness. To make a weak, or even a lazy brute toil throughout the livelong day, and every day, is almost as great a cruelty as can be perpetrated: and inflictions of this nature would be lessened in frequency and severity, if horses of such a character were not allowed to beget offspring in their own likeness—if we only bred from the "kartos aristoi"—only kept animals which

"wend their way,
Untired at night, and cheerful all the day."

Virgil's Georgics, III.

THE END.